Vital resources available to develop innovative curriculum and effectively reduce the time span needed to gain new knowledge and expertise in regard to the latest CADD packages

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Abstract

The fast evolving world of Computer Aided Drafting and Design (CADD) makes it very challenging for educators to stay up-to-date on issues related to the upgrades and development in software applications. Educators need to continuously explore new ways to gain the necessary knowledge needed for teaching comprehensive and meaningful classes essential to the needs of the designers and students receiving the training.

Textbooks are still the primary sources of learning for the majority of educators, but in the area of Computer Aided Design (CAD), changes happen much more rapidly than the textbooks can keep up. As a result there has to be other reliable and accessible resources to extract the vital information needed for the success of the students receiving training.

This article focuses on exploring and tabulating the latest methods vital in the upgrade of curriculum and advancement of faculty's expertise and readiness in teaching different CAD related subjects. Examples will be given for extracting some of the latest techniques from recent journal publications in an efficient and timely manner. Also, examples will be provided to illustrate the ease and advantages of using a variety of online resources as well as other innovative methods available to educators. The need for these resources is essential to shorten the time span between the introduction of a CAD package to the market and when it is being taught in classrooms or workshops.

I. Introduction

Considering the role of CAD educators to learn the new concepts, tips, and tricks of a new program and convey these materials to the professionals and CAD managers in a short amount of time is a daunting task that is not practical through conventional methods. This article intend to present the new methods available in a real-time basis that allows learning at a pace set by the individuals attempting to learn the new features of a CAD package.

II. Conventional training methods

For years CAD educators prepare for classes using what was at their disposal, textbooks and manuals. These resources play an important role in the growth and self education of these individuals, but the information presented in textbooks generally lag behind the software development for at least several months, plus the fact that "many people don't do well when forced to slog through a lengthy book"[1].

In recent years some multi-media tools such as CD-ROMs, and videos have come about to help expand the choice of learning medium plus the added features of voice and motion in presenting the materials. Considering the time that it takes for these materials to appear on the market, selecting one of these media is not drastically different from textbooks preparing educators in the time span available to them.

In larger metropolitan areas, the existence of distributor/vendor locations and training centers provides a quick source to receive some training, but most of these trainings are basic and do not cover specialized training needed to focus only on the new capabilities of the software. Recently, some of these vendors have started to take on the role of forming short workshops and training sessions where educators from different institutions are brought together for a quick dose of information and training. These workshops provide the opportunity for the participants working in local institutions to meet each other and form a support group.

Among the vital resources available, professional journals such as CADANCE and CADALYST continuously publish new information. The information teaches readers about new commands as well as different ways of using these commands to accomplish tasks at hand, faster and in a more efficient way. Personally, I have found these sources to be very reliable for learning new materials and also finding answers to the rare problems encountered teaching classes.

III. Real-time training methods

Fortunately there are a several other options available to professionals and educators attempting to enhance their knowledge and stay up-to-date. These real-time training options and concepts came about when CAD developers started to establish easier means to communicate via Internet with their clients. Most CAD programs are capable of launching web browsers, open/save drawing from the Internet, plus creating and using hyperlinks.

Although this method is in its infancy, online training is being used increasingly for variety of general or specific trainings. CAD training packages are now being delivered via live Internet or collaborative conferencing sites and software[1.] Classes can be downloaded or viewed in small modules instantaneously. This has the added advantage that one can work at one's own pace rather than cramming the material in a one-day training session. Examples are: Autodesk e-learning training, iDesign online conference, Bently's online services and educational supports "www.bentleyinstitute.bentley.com"[3], and SDRC web site www.sdrc.com/education/[4]. Some of the features presented under Autodeskpress-e-resources include: syllabus and lesson plan tools, chapter hints, Power Point presentations, computerized test bank, CADD drawing files, World Class manager, which allows instructors to automatically extract and track data from on-line test. Practice tests, and animations, which depict the execution of key concepts and commands in drafting, design and AutoCAD (ACAD)[2].

Publishing companies are also starting to put increasingly more resources on line. Examples are www.autodeskpress.com[6], and www.cadd-drafting.com. Educators can choose to tap into the online companion resources. Online companion is a link to ACAD supporting resources with links to a variety of sites. You can find information about training and education, industry sites, and the online community. Users can log into

http://www.autodeskpress.com/onlinecompanion.html and find pages specific for a textbook where they can choose to use a swap bank to share drawings with other ACAD users.

CAD users could also choose to take advantage of other sources available now through the Internet sites developed by professional journals such as CADALYST. CADALYST's CAD user's training guide links to training resources for many popular CAD developers[5].

Firm name & information	Type of training	Medium for training	Cost
StayAnimated 877.871.0966 www.stayanimated.com	3D Studio MAX & VIZ Training series	Video	$89.95
Nuimage Labs 919.871.0966 www.nuimagelabs.com	3D studio Viz: getting started and Tips and Tricks	Video	Call for pricing
Nuimage Labs 919.871.0966 www.nuimagelabs.com	ArchiCAD Training Guide	Book	$30
At a Glance, Inc. 800.847.6992 info@awarenesslearning.com	ArchiCAD Project Framework	Book and CD-ROM	$65
Graphisoft 800.344.3468 www.graphisoft.com	Step x Step	Book and CD-ROM	$30
Nuimage Labs 919.871.0966 www.nuimagelabs.com	AutoCAD Productivity Newsletter	Bi-monthly publication	$59.00
At a Glance, Inc. 800.847.6992 info@awarenesslearning.com	Referentia for AutoCAD: Release 14	CD-ROM	$349
At a Glance, Inc. 800.847.6992 info@awarenesslearning.com	Mastering Today's AutoCAD	One day training event	$299
CADKEY 800.372.3872 www.cadkey.com/webstore	CAD InSite Bundle	Book/ 3 CD-ROMs	$149
SolidWorks 800.693.9000 www.solidworks.com	Fundamentals of Solid Modeling with CADKEY	Book	$129.99
SolidEdge 800.693.9000 www.solidedge.com	General Solid Edge training.	Class www.solidedge.com/ training/default.htm	Varied
Unigraphics Solutions 800.807.2200	CAST (computer assisted self-teach)	CD-ROM	$500

Solidedge@ugsolutions.com	Solid Edge		
Unigraphics Solutions 800.807.2200 Solidedge@ugsolutions.com	Solid Edge Classroom Training	Class	$350 per day, per student
DATACAD 800.394.2231 www.datacad.com sales@datacad.com	DataCAD 8.0 Advanced Training	Video	$249.95 (3 volume set), $89.95 (single volume)
Bentley bentley.institute@bentley.com	Internet User's Group DataCAD Forum –DBUG	Online forum. EMail message to majordomo@world.com, in body of message type "subscribe datacad-dbug"	Free
SDRC 888.539.7372 www.sdrc.com/education/	I-DEAS Update Training	CD-ROM	$50.00 per user
Bentley 800.968.1000 www.bentleyinstitute.bentley.com	Bentley Institute for DataCAD	Class	Varies
SolidWorks 800.693.9000 www.solidworks.com	Fundamentals of Parametric Solid Modeling	CD-ROM	Free
SDRC 888.539.7372 www.sdrc.com/education/	Getting Started with I-DEAS	Online, HTML-based format	Included with software
Varimetrix 321.676.3222 training@vx.com	VX CAD Training	3-day course	$1,495
Think3 800.323.6770 www.think3.com www.think3.com/education/	think3 webtraining	Online	Free

Table1. Summary of information extracted from URL: www.cadalyst.com/cadlinks/training/index.htm.

IV. Conclusion

CAD trainers requires up-to-date knowledge that is gained through interactive hands-on work in a short amount of time from the time a new version of a CAD software comes on market to the time that it needs to be taught to professionals and CAD managers. For this reason CAD educators can no longer totally rely on the conventional methods, such as textbooks, manuals, or multimedia devices like CDs and videotapes to upgrade their skills.

Today, educators can locate, among other resources on-line training modules. These modules help learning the new material in a tailored fashion needed by these individuals, at a pace preferred for a comprehensive understanding required for teaching the points learned. Although Internet plays a vital role in a real-time based training, the importance of reviewing monthly articles is vitally important. Circles and Lines, Tips and Tricks, and Third Dimension published in CADENCE or just scanning through Tips from readers of these journals and reading some of the related articles published, are undeniably important in the development of current knowledge in regard to a particular CAD package.

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